SERIAL NO. 3216

ONKYO SERVICE MANUAL

Stereo Graphic Equalizer

MODEL EQ-15(B)

UD	120V AC, 60Hz
UW	120V/220V AC, 50/60Hz

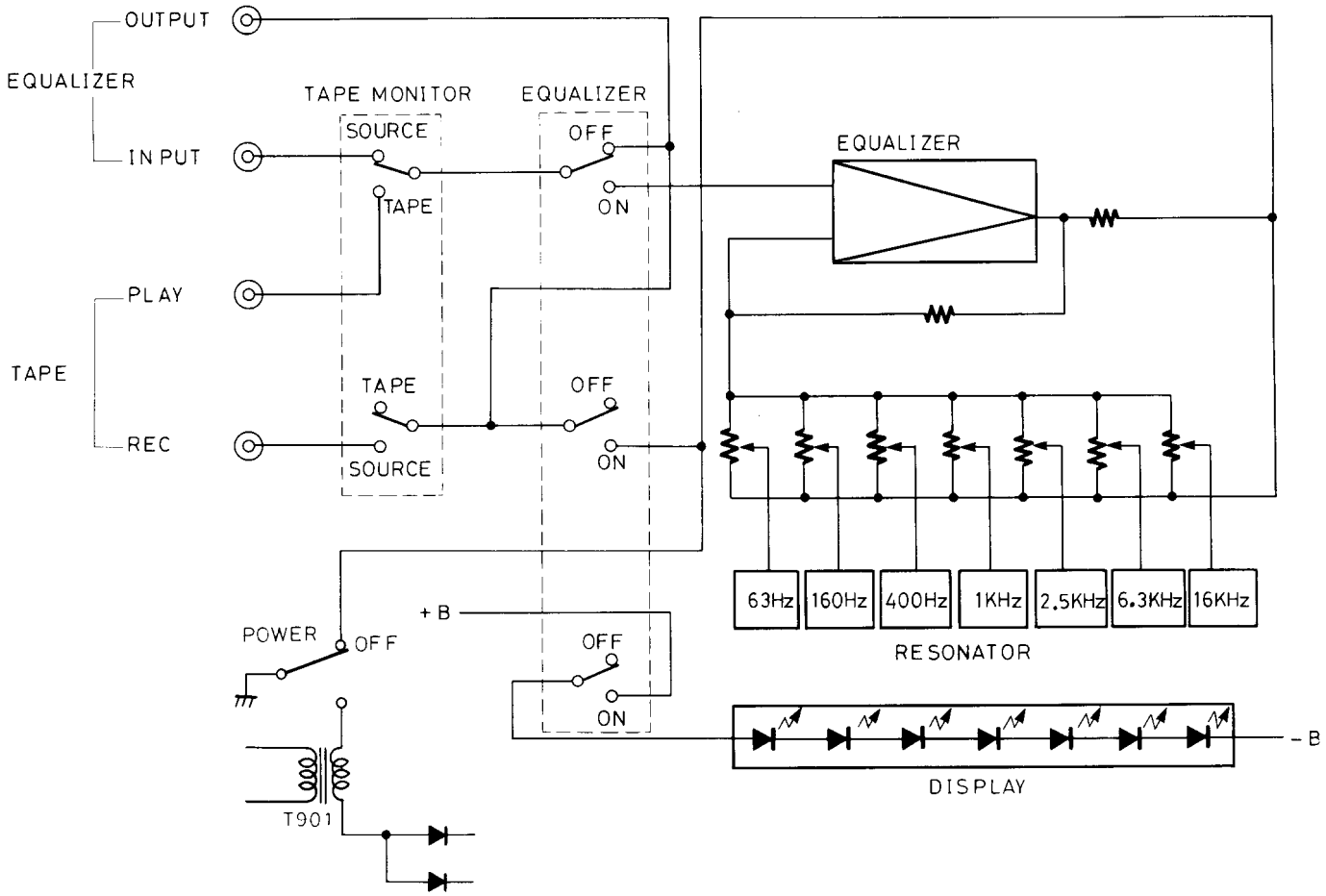
ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

Input:	Input sensitivity (FLAT):	150mV
	Input impedance:	50 kohms
Output:	Output voltage (FLAT):	150mV
	Output impedance:	1.0 kohms
Max. input:	5 volts, 20Hz – 20kHz, 0.05% THD	
Frequency response:	10Hz to 35kHz (+0, –0.5dB)	
Total harmonic distortion:	Less than 0.01% at 20Hz-20kHz, 1.5V output (FLAT)	
Signal-to-noise ratio:	100 dB, 1.5V output, IHF-A input short	
Adjustable range:	±12dB	
Gain:	0 dB	
Semiconductors:	ICs: 1 TRs: 14 Diodes: 2 LEDs: 15	
AC outlet:	200 watts (UNSWITCHED)	
	USA & Canadian models only	
Power supply:	AC 120V, 60Hz	
	AC 120V/220V, 50/60Hz	
Dimensions:	435(W) X 73(H) X 255(D) mm	
Weight:	2.4 kg, 5.3 lbs.	

Specifications and features are subject to change without notice.

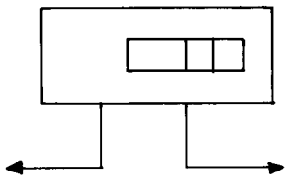
BLOCK DIAGRAM



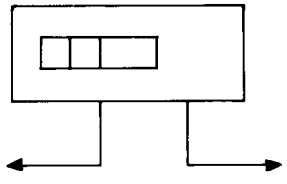
PRECAUTIONS

1. **Insulation resistance measurement (Only U.S.A. model)**
   Connect the insulating-resistance tester between the plug of power supply cable and the terminal GND on the back panel.
   Specification; More than 10 MΩ at 500V.

2. **Voltage selector (rear panel)**
   Some models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to the right or left position.
   Confirm that the switch has been moved all the way to the right or left before turning the power switch on. If there is no voltage selector switch on the unit you have purchased, it can only be used in areas where the power supply voltage is the same as that of the unit.



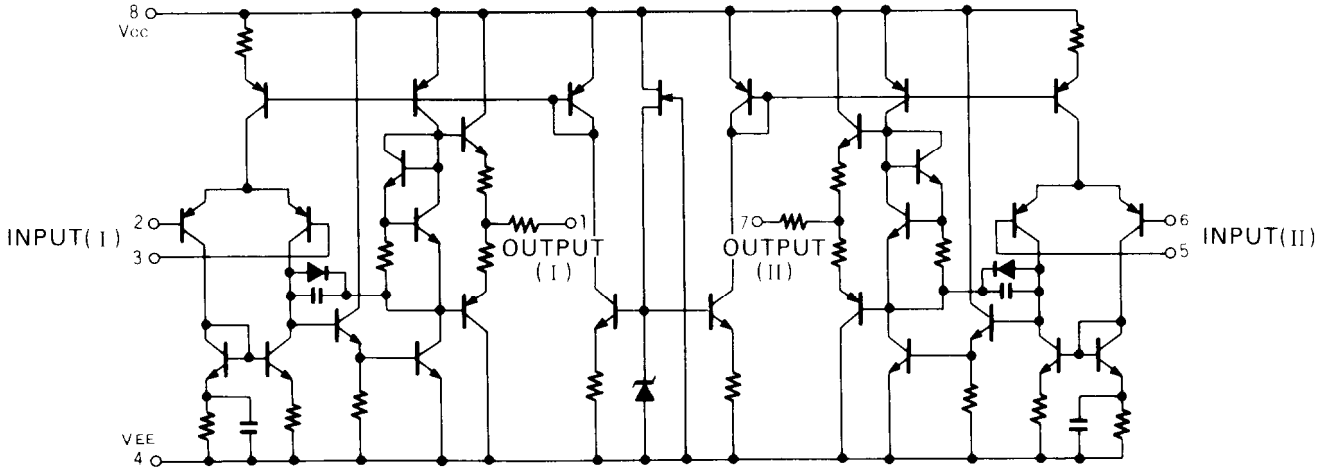
at AC 120 V



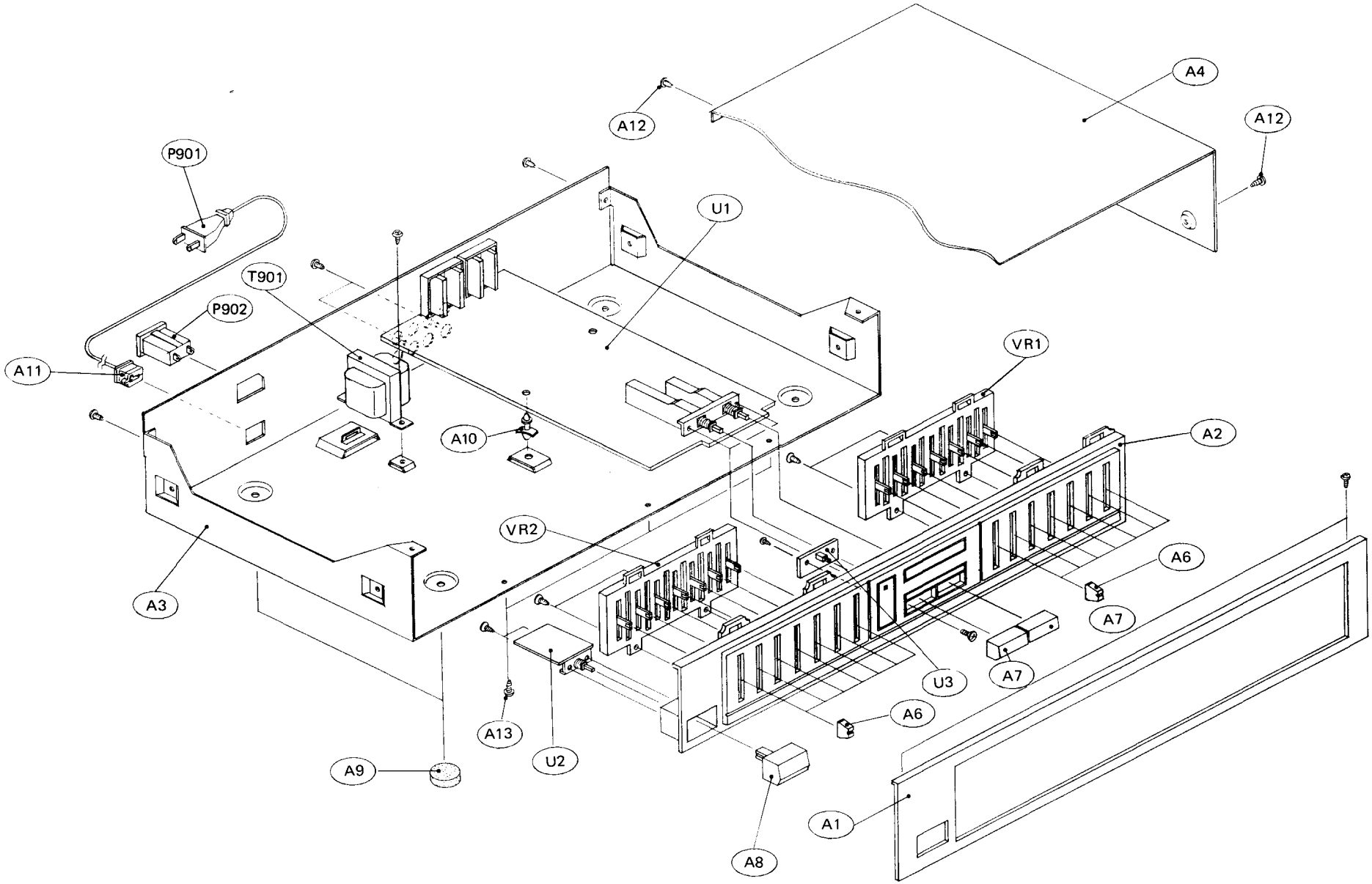
at AC 220 V

IC BLOCK DIAGRAM

NJM4558



CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW-PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A1	19308121	Front panel ass'y
A2	27267440	Panel
A3	27100083	Chassis
A4	28184302	Top cover
A6	28322302	Knob, GE
A7	28322303	Knob, PUSH
A8	28321905A	Knob, POW
A9	27175126	Bottom leg
A10	27270171	Holder
A11	27300750	Strainrelief
A12	838430068	3TTB+6B(BC), Tapping screw
A13	833430080	3TTP+8P(BC), Tapping screw
⚠T901	2300038	NPT-900D, Power transforemer
VR1, VR2	6142051	N30LGLC100KW15Z × 7, Variable resistor
⚠P901	253099B or	AS-UC-3, Power supply cable or
⚠P901	253099C	AS-UC-3, Power supply cable
⚠P902	25050124	NSCT-2P27T, AC socket
U1	19308568	NAEQ-2468, Equalizer circuit pc board ass'y
U2	19308569	NASW-2469, Equalizer switch pc board ass'y
U3	19308570	NALED-2470, Display pc board ass'y

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD PARTS LIST

EQUALIZER CIRCUIT PC BOARD (NAEQ-2468)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
IC101	222570	NJM4560DX
	Transisters	
Q1~Q7	2212125	2SA1048 GR
Q51~Q57	2212115	2SC2458 GR
	Diodes	
D101,D102	223839	1N4002
	Capacitors	
C1,C51	352780109	1μF, 50V, Elect.
C2,C52	370132214	220pF, 100V, Film, APS
C3,C53	352750479	4.7μF, 25V, Elect.
C4,C54	352780339	3.3μF, 50V, Elect.
C5,C55	371126835	0.068μF, 50V, Mylar
C6,C56	352780159	1.5μF, 50V, Elect.
C7,C57	371122235	0.022μF, 50V, Mylar
C8,C58	352784799	0.47μF, 50V, Elect.
C9,C59	371121035	0.01μF, 50V, Mylar
C10,C60	352781599	0.15μF, 50V, Elect.
C11,C61	371126825	6800pF, 50V, Mylar
C12,C62	371126835	0.068μF, 50V, Mylar
C13,C63	371122725	2700pF, 50V, Mylar
C14,C64	371122735	0.027μF, 50V, Mylar
C15,C65	371121525	1500pF, 50V, Mylar
C16,C66	371121035	0.01μF, 50V, Mylar
C17,C67	370138214	820pF, 100V, Film, APS
C102,C103	352751029	1000μF, 25V, Elect.
C104,C105	352741029	1000μF, 16V, Elect.
	Resistors	
R101	441723324	3.3kΩ, 2W, Metal oxide film
R102~R105	441622414	240Ω, 1W, Metal oxide film
	Switches	
S2,(S3)	25035502	NPS-142-162-L464, Push switch
	Input terminals	
	25045167	NPJ-4PDBL61
	Sockets	
	25050244	NSCT-3P72
	25050245	NSCT-4P73
	25050248	NSCT-7P76

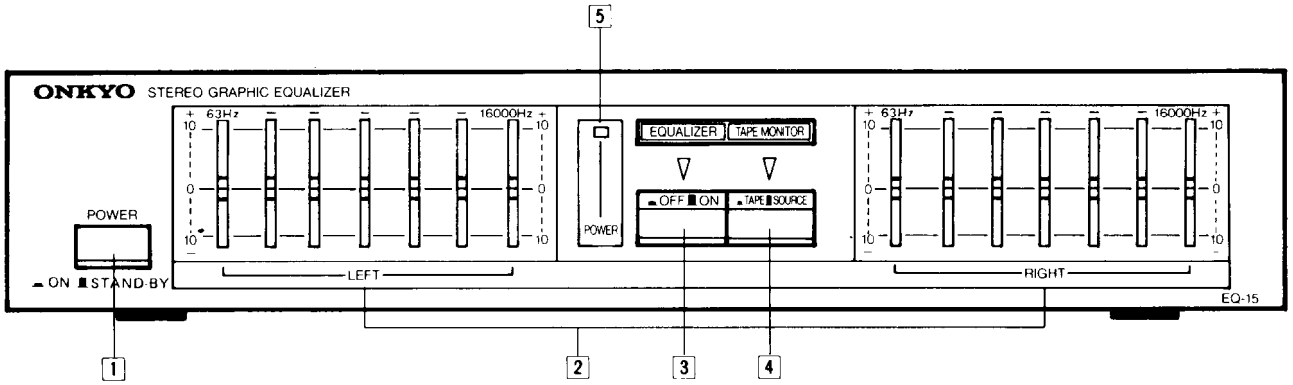
EQUALIZER SWITCH PC BOARD (NASW-2469)

CIRCUIT NO.	PART NO.	DESCRIPTION
S1	25035501	NPS-122-L463, Push switch

LED CIRCUIT PC BOARD (NALED-2470)

CIRCUIT NO.	PART NO.	DESCRIPTION
	L.E.D.	
LED101	225199	AY2651K

FRONT PANEL FACILITIES



1 Power Switch (POWER)
Depress once to turn power on and once again to turn power off. When Power is turned OFF, set the Equalizer switch 3 to the OFF position or the Tape monitor switch of Amplifier to the SOURCE position.

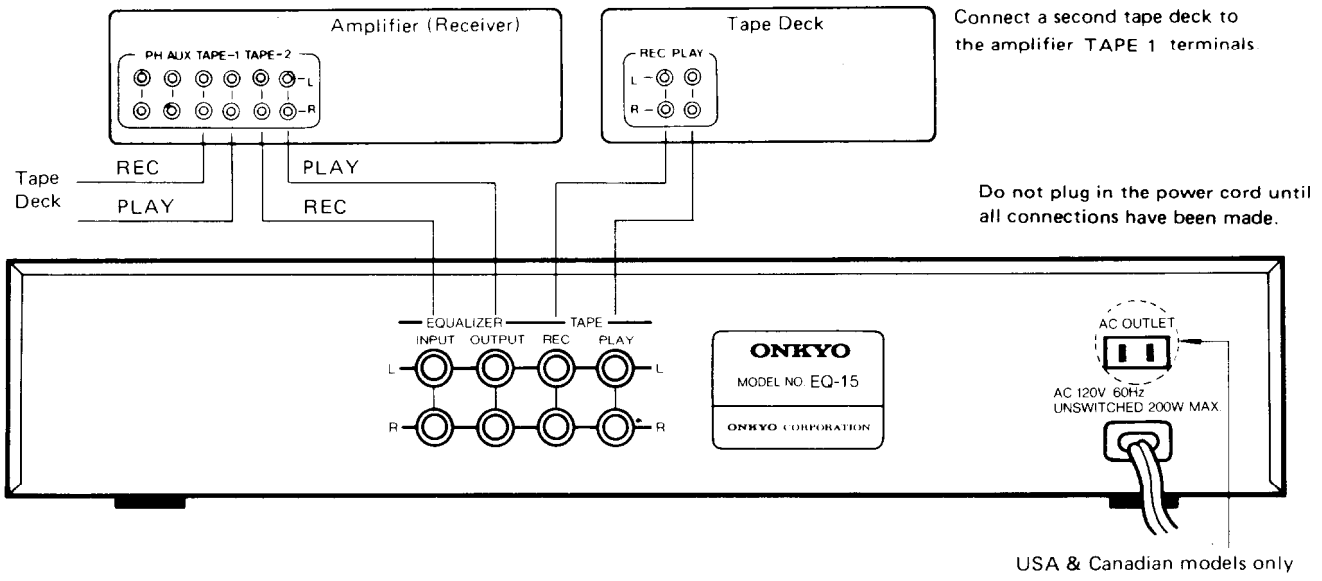
2 Level Controls and Indicator
Each control raises and lowers the response of the frequency range centered at the indicated frequency. Above the center '0' click-stop position, response is emphasized; below the '0' position, response is attenuated.

3 Equalizer Switch (EQUALIZER)
Depress to the OFF position (▬) to turn off the equalization effect set by the level controls. In the ON position (■) (Level Control Indicator lights), the program source is equalized according to the settings of the level controls.

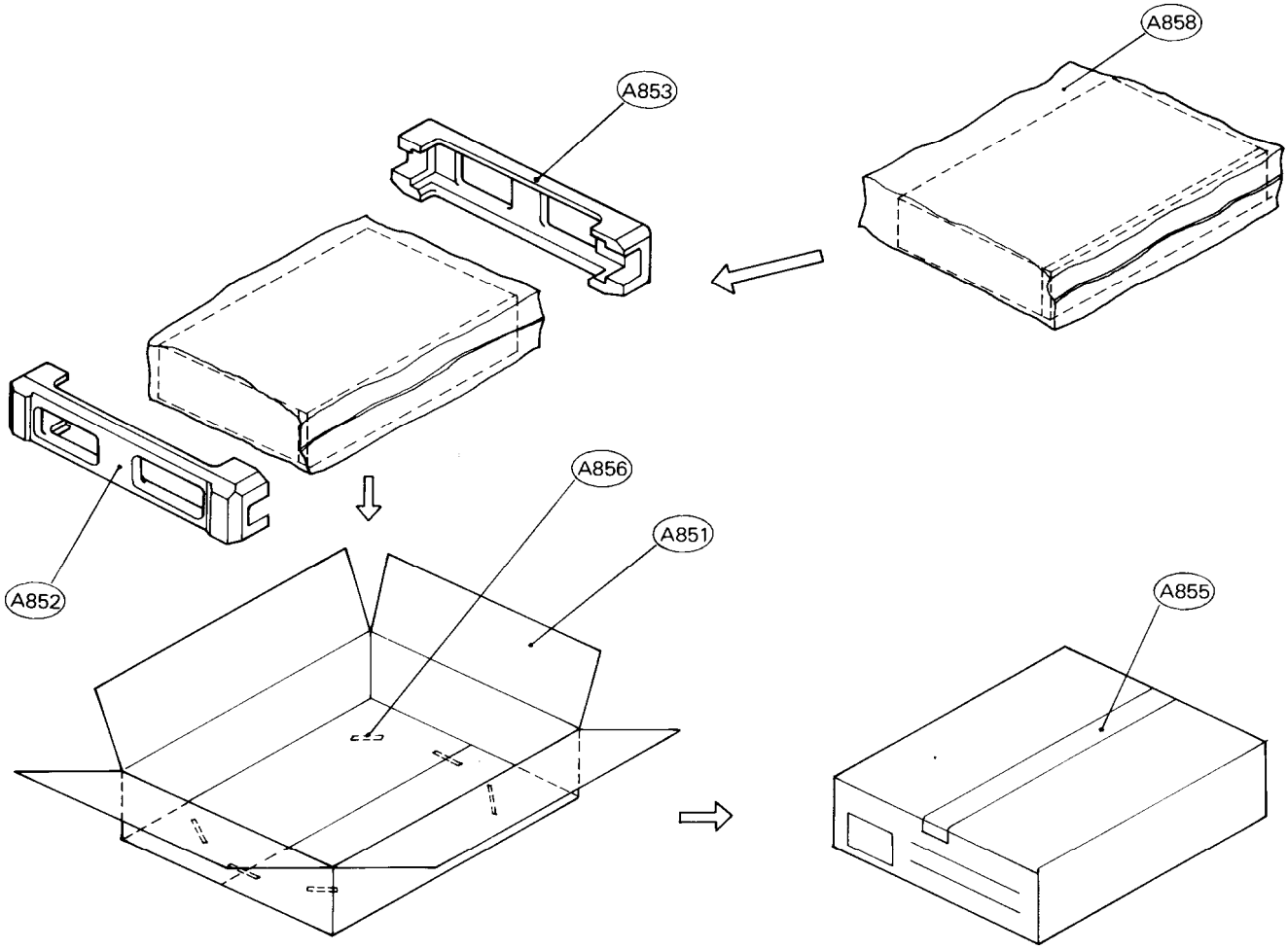
4 Monitor Switch (TAPE MONITOR)
Depress to the TAPE position (▬) to equalize the playback signal from the tape deck connected to the rear panel TAPE terminals. In the SOURCE position (■), the signal from the amplifier connected to the rear panel EQUALIZER INPUT terminals is input for equalization.

5 Power Indicator (POWER)
When Power is turned on, the Power Indicator 5 light.

SYSTEM CONNECTIONS



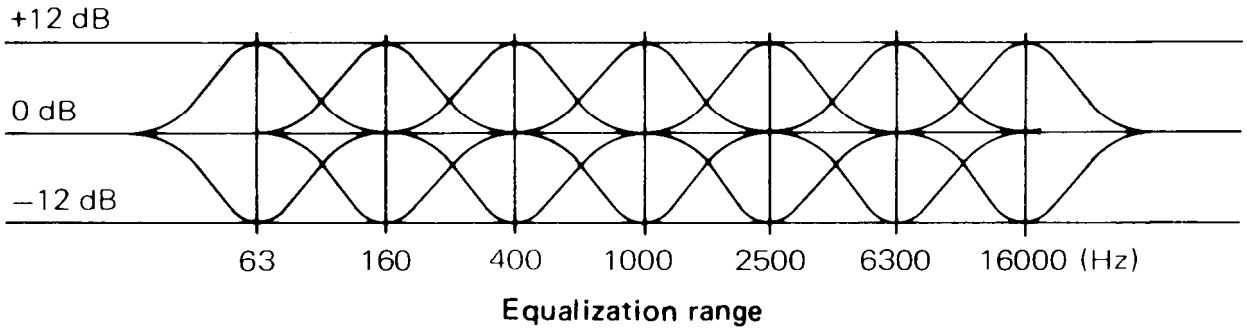
PACKING PROCEDURES



REF. NO.	PART NO.	DESCRIPTION
A851	29051221	Master carton box
A852, A853	29091044	Pad
A855	260012	Damplon tape
A856	282301	Sealing hook
A858	29100078	Poly bag
A880	Accessary bag ass'y	
	29340899	Instruction manual
	29340943	Instruction manual [W]
	29365006-6	Warranty card [U]
	29358002C	Service station list [U]
	29100006A	350 x 250, Poly bag
	2010112	Connection cable
	25055040	CV-K-2, Conversion plug [W]

NOTE
[U] : Only U.S.A. model
[W] : Only 120V/220V model

USING THE LEVEL CONTROLS



Equalization range

63 Hz

This range includes the low rumbling sort of sounds created by a pipe organ or the lowest range of a piano. Lowering this level control eliminates humming noises from electric musical instruments, ventilation systems and other sources.

160 Hz

Frequencies around 125 Hz are the standard "bass" tones with which most people are familiar. The position of this level control is very important because it has a major effect on the amount of "richness" or "body" in the music.

400 Hz

This frequency range contain most sounds from musical instruments and voices. Consequently, the position of this level control determine the amount of power and warmth in the music.

1000 Hz

Sounds in this range seem to strike the face, giving the music a lively feeling that should be emphasized or attenuated according to the music program and listening environment.

2500 Hz

This frequency range contains the sounds that seem to pierce the ears to give trumpet notes their strength. Use this level control to adjust the power of this sort of music.

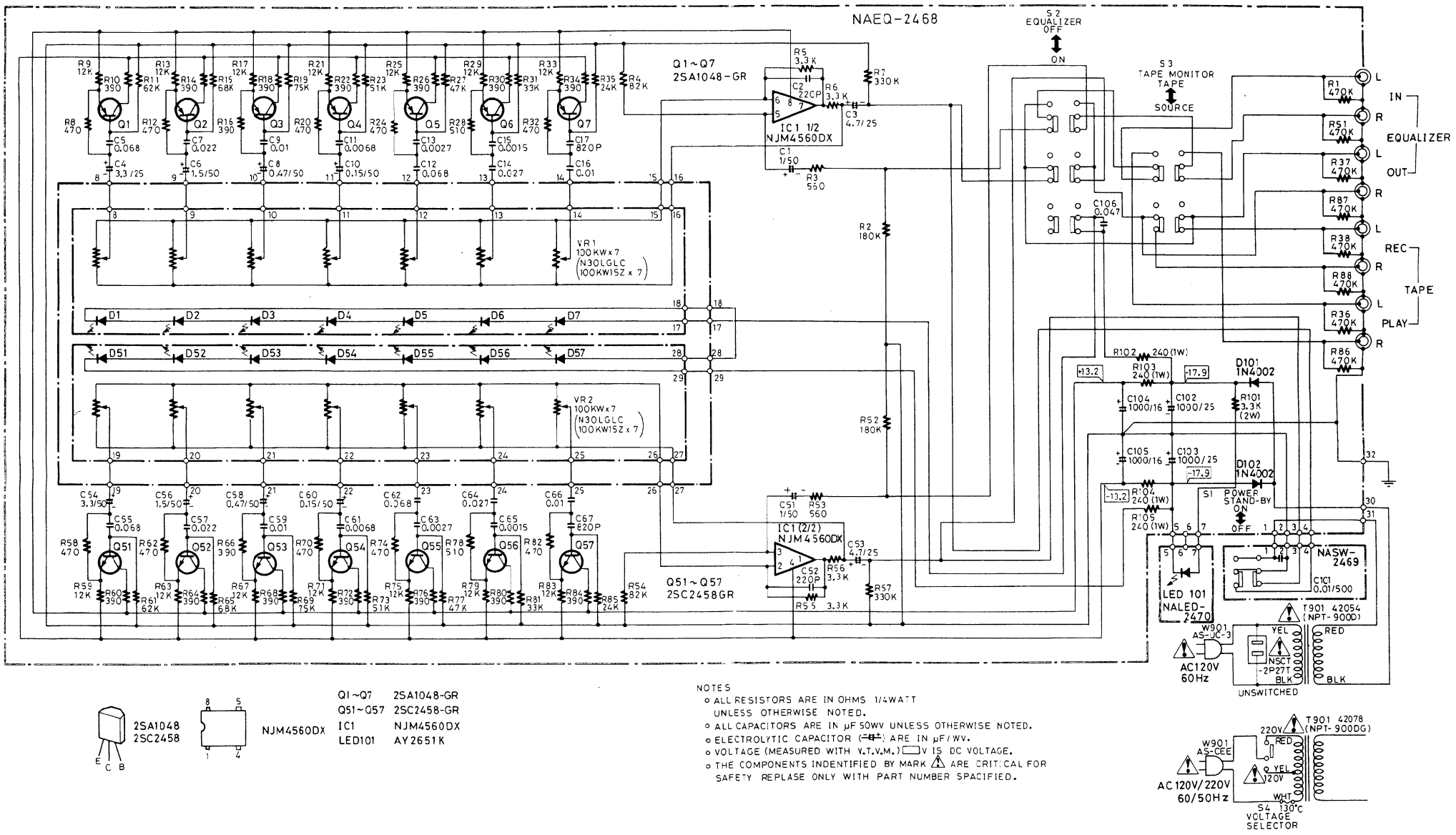
6300 Hz

Sounds in this range give music its sparkle. It is particularly important in controlling the clarity of high violin notes and other soft, high range tones.

1600 Hz

Frequencies this high are mainly harmonics and overtones of other notes of musical instruments. Adjusting this level control affects the delicacy of the music and the sensation of the music "flowing" or "drifting".

SCHEMATIC DIAGRAM



Q1~Q7	2SA1048-GR
Q51~Q57	2SC2458-GR
IC1	NJM4560DX
LED101	AY2651K

NOTES
- ALL RESISTORS ARE IN OHMS 1/4WATT UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF 50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITOR (⊕⊖) ARE IN μF/WV.
- VOLTAGE (MEASURED WITH V.T.V.M.) □V IS DC VOLTAGE.
- THE COMPONENTS INDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLASE ONLY WITH PART NUMBER SPACIFIED.

ONKYO CORPORATION